

COVID-19 Breakthrough Report

Oregon's Weekly Surveillance Summary



Breakthrough case report - October 14, 2021

Background

Data for the weekly breakthrough case report will include data through the most recent Sunday and the report will be published on Thursdays.¹ Vaccine breakthrough cases are defined as instances in which an individual tests positive for COVID-19 at least 14 days following the completion of any COVID-19 vaccine series.² Vaccine breakthrough cases that result in hospitalization or death are reported to CDC.

This report includes only those vaccine breakthrough cases which are reported to public health following a positive test result. Many vaccine breakthrough cases are believed to experience no symptoms or minimal symptoms.³ These cases are unlikely to undergo testing for COVID-19 and be reported to public health. Therefore, the true number of vaccine breakthrough cases is unknown.

COVID-19 cases in vaccinated and unvaccinated people

Weekly summary

During the week of October 03–October 09, there were 9,141 cases of COVID-19. 6,651 (72.8%) were unvaccinated and 2,490 (27.2%) were vaccine breakthrough cases. The median age of breakthrough cases was 47 years. 65 (2.6%) breakthrough cases were residents of care facilities, senior living communities or other congregate living settings. 616 (24.7%) cases were 65 or older. There were 122 (4.9%) cases aged 12-17.

OHA publishes the most up-to-date information about cases from the most recently completed MMWR week. However, not all information about a case's vaccination status may be available at the

¹ The weekly summary, Figure 1, and Figure 2 use the date that cases are reported to OHA, to provide information on the most recently identified cases. All other dates in this report use specimen collection date to align with the breakthrough case definition.

² This definition is consistent with the CDC's definition, available here:
<https://www.cdc.gov/vaccines/covid-19/downloads/COVID-vaccine-breakthrough-case-investigations-Protocol.pdf>

³ Bergwerk, M., Gonen, T., Lustig, Y., Amit, S., Lipsitch, M., Cohen, C., Mandelboim, M., Gal Levin, E., Rubin, C., Indenbaum, V. and Tal, I., 2021. Covid-19 breakthrough infections in vaccinated health care workers. New England Journal of Medicine.

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time of publication. Table 1 includes updated totals of COVID-19 cases by vaccine breakthrough status for the previous six weeks.

Table 1. COVID-19 cases by vaccine breakthrough status over the previous 6 weeks

MMWR week ending	Total cases	Breakthrough cases	Percent breakthrough case
2021-09-04	13,763	2,989	21.7
2021-09-11	13,983	2,896	20.7
2021-09-18	11,958	2,830	23.7
2021-09-25	11,542	2,551	22.1
2021-10-02	10,390	2,618	25.2
2021-10-09	9,141	2,490	27.2

Cumulative summary

Overall, there have been 30,687 vaccine breakthrough cases identified in Oregon. The median age of breakthrough cases is 48 years (range: 12-106). 1,164 (3.8%) breakthrough cases were residents of care facilities, senior living communities or other congregate living settings. 7,689 (25.1%) cases were 65 or older. There have been a total of 754 (2.5%) cases aged 12-17. Breakthrough cases have been reported in all 36 counties.

Cases of COVID-19 are much more common in unvaccinated⁴ individuals than in vaccinated individuals (Figure 1). The rate of COVID-19 cases among unvaccinated individuals in the most recent week was approximately 3.5 times the rate of COVID-19 cases among those who are fully vaccinated. Community spread remains elevated throughout the state and is particularly high in areas with lower vaccination rates. As COVID-19 cases have increased across Oregon, vaccine breakthrough cases have also increased, but at a much lower rate than in the unvaccinated. Vaccination remains the most effective tool to reduce the spread of COVID-19.

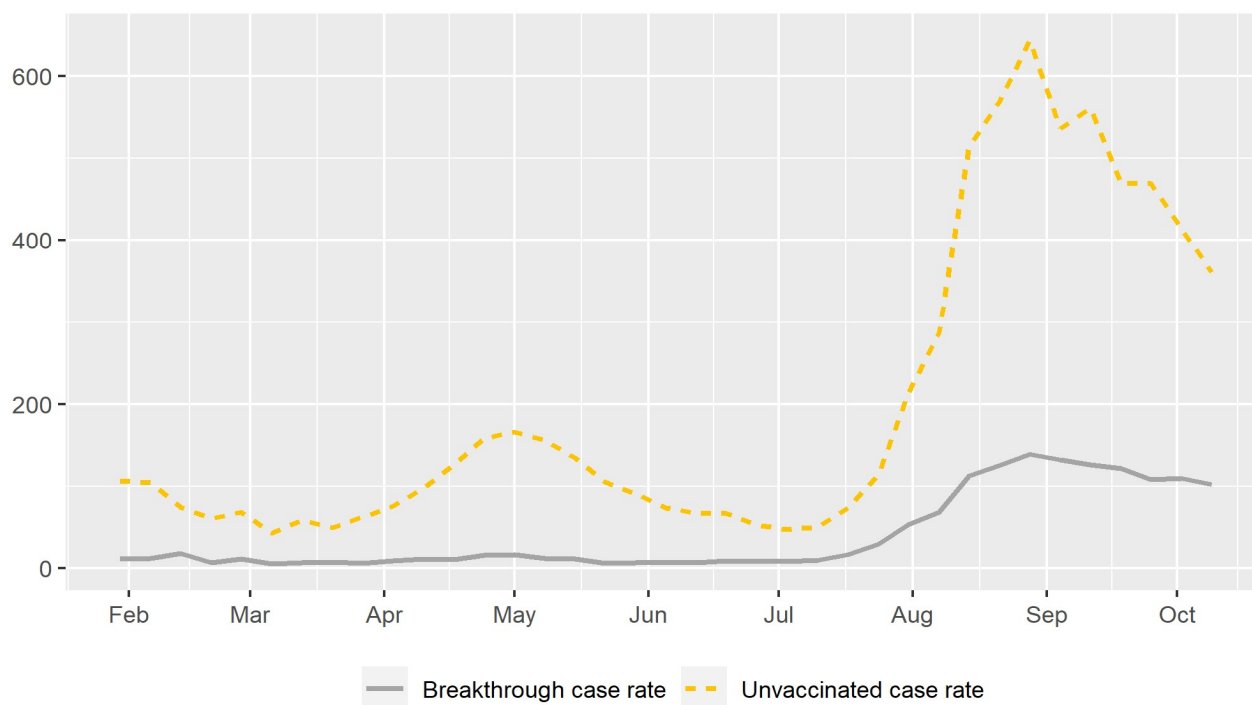
⁴ Unvaccinated persons are defined as people who have not received an approved COVID-19 vaccine, or who have not completed a COVID-19 vaccine series.

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Figure 1. COVID-19 cases per 100,000 per week, by vaccination status



Vaccine breakthrough cases and severity

The Pfizer, Moderna and Johnson & Johnson COVID-19 vaccines are highly effective at preventing severe COVID-19 illness and death. Table 2 includes totals of breakthrough cases by vaccine manufacturer and severity. Relatively few breakthrough cases have been hospitalized, and even fewer have died (Figure 2).

To date, 4.4% of all known breakthrough cases have been hospitalized (n=1365), and only 1% have died (n=292). The median age of the people who have died is 81 (range: 34-101). It is important to note that not all vaccine breakthrough cases are reported to public health, which may cause the proportions in the following section to appear higher than in reality. These figures are not vaccine breakthrough hospitalization or death rates and should not be interpreted as such.

Table 6 provides the proportion of vaccine breakthrough cases who have died with COVID-19. More than 80% of vaccine breakthrough deaths have occurred in patients 70 years and older. The proportion of vaccine breakthrough cases who have died with COVID-19 has increased over time. This trend is likely multifactorial and may be associated with increased COVID-19 transmission in our communities,

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increased disease severity associated with infection caused by the Delta variant and waning immunity over time in elderly populations.

Tables 4 and 5 provide detailed vaccine breakthrough severity data by race and ethnicity.

Table 2. COVID-19 Breakthrough cases by vaccine manufacturer and severity⁵

Vaccine manufacturer	Primary series completed	Cases	Hospitalizations	Deaths	Cases per 100,000 vaccinated
Pfizer	1,425,260	15,057	562	143	1,056.4
Moderna	908,694	7,938	333	72	873.6
Johnson & Johnson/Janssen	218,836	3,648	203	34	1,667.0

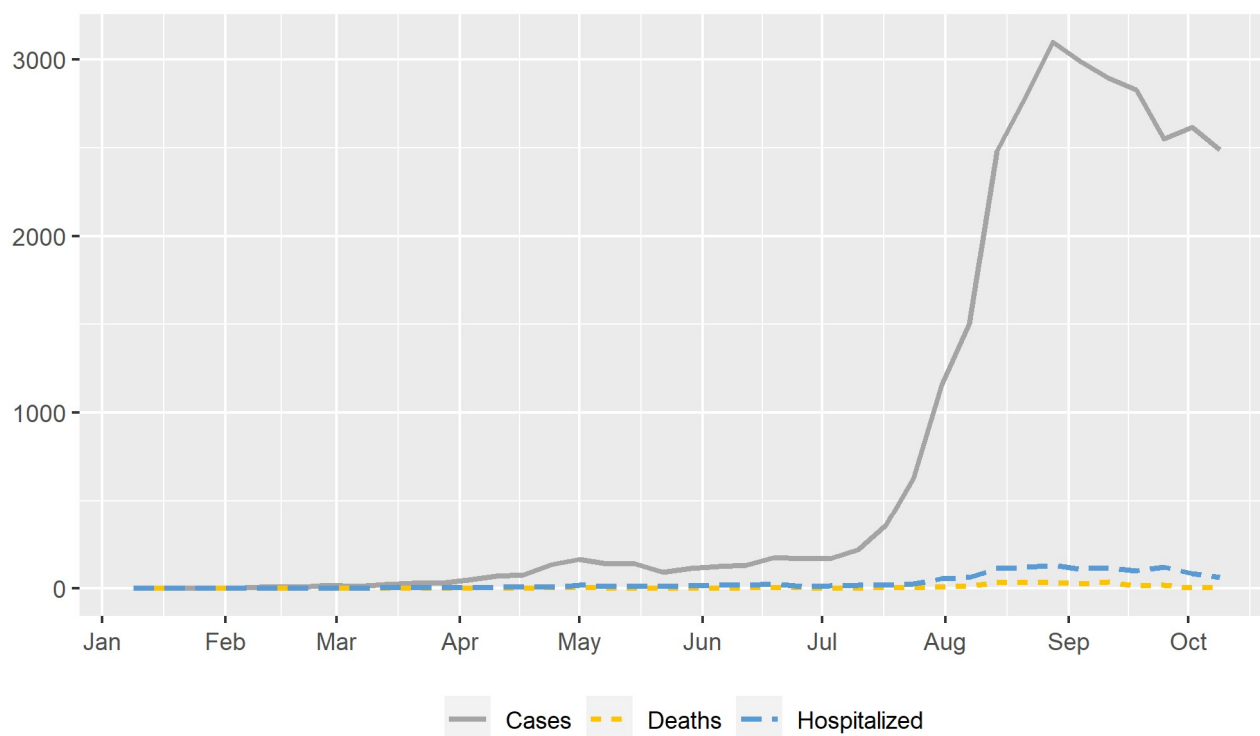
⁵ Table 2 provides the number of cases per 100,000 vaccinated individuals by vaccine manufacturer. Because this figure does not account for the time that each person has been fully vaccinated, it is not a true rate and should not be interpreted as such.

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Figure 2. COVID-19 breakthrough cases, hospitalizations and deaths, by week



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Table 3. COVID-19 breakthrough cases by age group and severity

Age group	Breakthrough cases	Breakthrough hospitalizations	Breakthrough deaths
12-19	1,362	9	0
20-29	4,329	26	0
30-39	5,277	41	2
40-49	5,138	58	6
50-59	4,668	122	10
60-69	4,398	280	46
70-79	3,374	372	73
80+	2,141	457	155
Total	30,687	1,365	292

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Table 4. COVID-19 breakthrough case severity by race⁶

Race	Cases	Hospitalizations	Deaths
> 1 race	300	11	2
American Indian/Alaska Native	411	18	4
Asian	695	26	2
Black	437	33	4
Not Available	7,787	173	63
Other	2,216	72	25
Pacific Islander	70	3	0
White	18,771	1,029	192
Total	30,687	1,365	292

Table 5. COVID-19 breakthrough case severity by ethnicity

Ethnicity	Cases	Hospitalizations	Deaths
Hispanic	2,275	56	9
Not Hispanic	15,766	890	164
Unknown	12,646	419	119
Total	30,687	1,365	292

⁶ During the case investigation, people are asked to self-report their race, ethnicity, tribal affiliation, country of origin, or ancestry. 42,423 (80.8%) of the 52,483 persons who identify as “Other” race also self-identify as Hispanic or Latino.

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Table 6. COVID-19 deaths by week, by breakthrough case status^{7 8}

Month	Total COVID-19 deaths	Vaccine breakthrough deaths	Percent vaccine breakthrough deaths
March 2021	118	4	3.4
April 2021	105	6	5.7
May 2021	183	15	8.2
June 2021	93	13	14.0
July 2021	81	16	19.8
August 2021	413	96	23.2
September 2021	595	115	19.3

⁷ Data in Table 6 will be updated monthly and will reflect cases from the previous month.

⁸ A death is considered to be related to COVID-19 in any of the following circumstances: a) death of a confirmed or probable COVID-19 case within 60 days of the earliest available date among exposure to a confirmed case, onset of symptoms, or date of specimen collection for the first positive test; b) death from any cause in a hospitalized person during admission or in the 60 days following discharge AND a COVID-19-positive laboratory diagnostic test at any time since 14 days prior to hospitalization; or c) death of someone with a COVID-19-specific ICD-10 code listed as a primary or contributing cause of death on a death certificate, regardless of the dates of diagnosis or death

Data are provisional and subject to change.

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COVID-19 variants

Table 7. COVID-19 breakthrough cases associated with variants of concern⁹

Overall, 6.5% of positive specimens in Oregon have been sequenced. Delta is currently the dominant variant circulating in Oregon. At this time, vaccine breakthrough cases appear to reflect the variants circulating in the community. Additional information on variants can be found here:

<https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/GISAIDVariantDashboardUpdated/OregonVariantDashboard>

Subtype	Cases
Delta (B.1.617.2)	1,049

Table 8. COVID-19 breakthrough cases associated with variants being monitored

Subtype	Cases
Alpha (B.1.1.7)	148
Beta (B.1.351)	16
Gamma (P.1)	62
Epsilon (B.1.427/B.1.429)	38
Iota (B.1.526)	29

⁹ As of September 29, OHA will align with CDC's classification of SARS-CoV-2 variants. Variant classification scheme defines four classes of SARS-CoV-2 variants: variants of concern, variants of interest, variants being monitored, and variants of high consequence. Delta is currently the only variant of concern in the United States.

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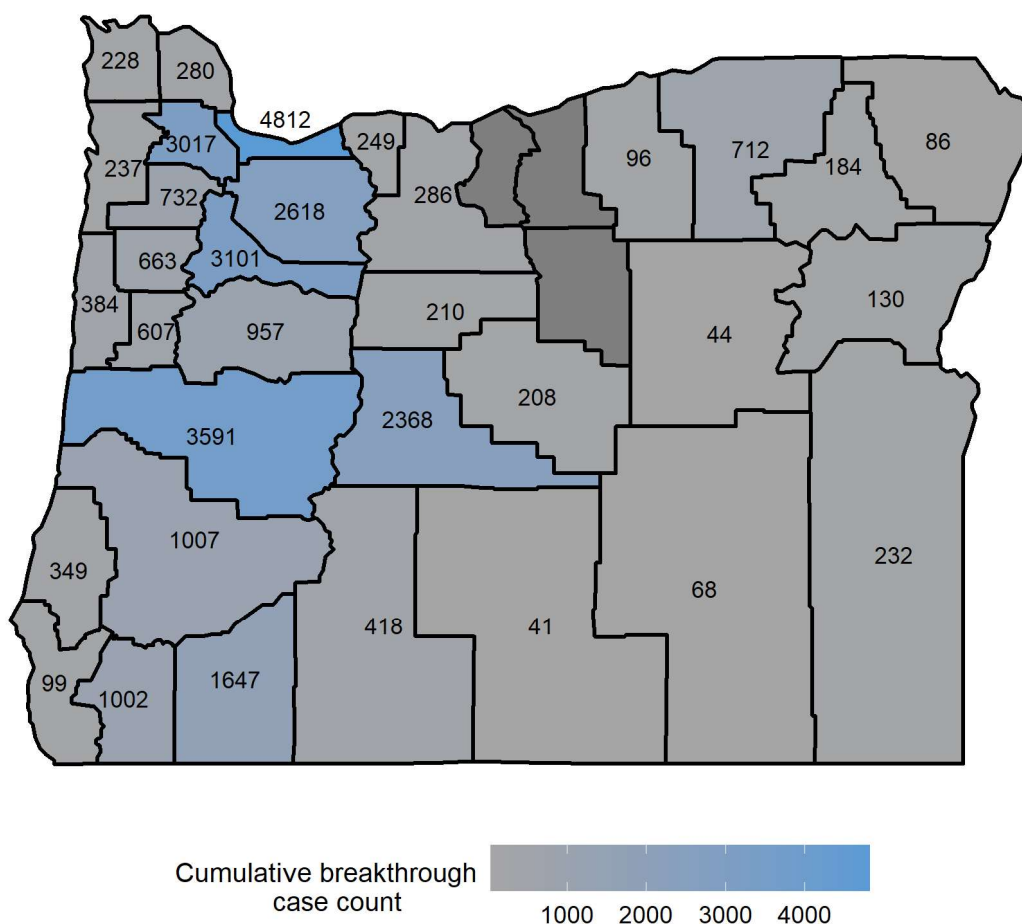
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Figure 3. Map of COVID-19 breakthrough case cumulative counts, by county of residence¹⁰

In general, cumulative breakthrough case counts correspond with the population size of each county. Additional information on cumulative case counts can be found here:

<https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonCOVID-19TestingandOutcomesbyCounty/OregonsCOVID-19TestingandOutcomesbyCounty>



¹⁰ Counties that have a total of fewer than 10 cases will appear grey without a data label.

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Table 9. COVID-19 breakthrough cases by county of residence¹¹

County	Cases
Baker	130
Benton	607
Clackamas	2618
Clatsop	228
Columbia	280
Coos	349
Crook	208
Curry	99
Deschutes	2368
Douglas	1007
Gilliam	1-9
Grant	44
Harney	68
Hood River	249
Jackson	1647
Jefferson	210
Josephine	1002
Klamath	418

¹¹ Counties that have a total of fewer than 10 cases will be reported as 1-9 cases.

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County	Cases
Lake	41
Lane	3591
Lincoln	384
Linn	957
Malheur	232
Marion	3101
Morrow	96
Multnomah	4812
Polk	663
Sherman	1-9
Tillamook	237
Umatilla	712
Union	184
Wallowa	86
Wasco	286
Washington	3018
Wheeler	1-9
Yamhill	732

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